SEQUENCE LISTING

#5

<110> Crooke, Stanley T.
Lima, Walter
Wu, Hongjiang

<120> Methods of Using Mammalian RNase H and Compositions Thereof

<130> ISPH-0520

<140> US/09/781,712
<141> 2001-02-12

<150> US 09/684,254
<151> 2000-10-06

<150> US 09/343,809
<151> 1999-06-30

<150> US 09/203,716
<151> 1998-12-02

<150> US 60/067,458
<151> 1997-12-04

<160> 39

<170> PatentIn version 3.0

<210> 1

<211> 299

<212> PRT

<213> Homo sapiens

<400> 1

```
Met Asp Leu Ser Glu Leu Glu Arg Asp Asn Thr Gly Arg Cys Arg Leu
1               5                  10                  15

Ser Ser Pro Val Pro Ala Val Cys Arg Lys Glu Pro Cys Val Leu Gly
            20                  25                  30

Val Asp Glu Ala Gly Arg Gly Pro Val Leu Gly Pro Met Val Tyr Ala
        35                  40                  45

Ile Cys Tyr Cys Pro Leu Pro Arg Leu Ala Asp Leu Glu Ala Leu Lys
    50                  55                  60
```

Val Ala Asp Ser Lys Thr Leu Leu Glu Ser Glu Arg Glu Arg Leu Phe
65 70 75 80

Ala Lys Met Glu Asp Thr Asp Phe Val Gly Trp Ala Leu Asp Val Leu
85 90 95

Ser Pro Asn Leu Ile Ser Thr Ser Met Leu Gly Trp Val Lys Tyr Asn
100 105 110

Leu Asn Ser Leu Ser His Asp Thr Ala Thr Gly Leu Ile Gln Tyr Ala
115 120 125

Leu Asp Gln Gly Val Asn Val Thr Gln Val Phe Val Asp Thr Val Gly
130 135 140

Met Pro Glu Thr Tyr Gln Ala Arg Leu Gln Gln Ser Phe Pro Gly Ile
145 150 155 160

Glu Val Thr Val Lys Ala Lys Ala Asp Ala Leu Tyr Pro Val Val Ser
165 170 175

Ala Ala Ser Ile Cys Ala Lys Val Ala Arg Asp Gln Ala Val Lys Lys
180 185 190

Trp Gln Phe Val Glu Lys Leu Gln Asp Leu Asp Thr Asp Tyr Gly Ser
195 200 205

Gly Tyr Pro Asn Asp Pro Lys Thr Lys Ala Trp Leu Lys Glu His Val
210 215 220

Glu Pro Val Phe Gly Phe Pro Gln Phe Val Arg Phe Ser Trp Arg Thr
225 230 235 240

Ala Gln Thr Ile Leu Glu Lys Glu Ala Glu Asp Val Ile Trp Glu Asp
245 250 255

Ser Ala Ser Glu Asn Gln Glu Gly Leu Arg Lys Ile Thr Ser Tyr Phe
260 265 270

Leu Asn Glu Gly Ser Gln Ala Arg Pro Arg Ser Ser His Arg Tyr Phe
275 280 285

Leu Glu Arg Gly Leu Glu Ser Ala Thr Ser Leu
290 295

<210> 2

<211> 128

<212> PRT

<213> Mus sp.

<400> 2

Met Asp Leu Ser Glu Leu Glu Arg Asp Asn Thr Gly Arg Cys Arg Leu
1 5 10 15

Ser Ser Pro Val Pro Ala Val Cys Leu Lys Glu Pro Cys Val Leu Gly

```
            20                  25                  30

Val Asp Glu Ala Gly Arg Gly Pro Val Leu Gly Pro Met Val Tyr Ala
        35                  40                  45

Ile Cys Tyr Cys Pro Leu Ser Arg Leu Ala Asp Leu Glu Ala Leu Lys
    50                  55                  60

Val Ala Asp Ser Lys Thr Leu Thr Glu Asn Glu Arg Glu Arg Leu Phe
65                  70                  75                  80

Ala Lys Met Glu Glu Asp Gly Asp Phe Val Gly Trp Ala Leu Asp Val
                85                  90                  95

Leu Ser Pro Asn Leu Ile Ser Thr Ser Met Leu Gly Arg Val Lys Tyr
            100                 105                 110

Asn Leu Asn Ser Leu Ser His Asp Thr Ala Ala Gly Leu Ile Gln Tyr
        115                 120                 125
```

<210> 3

<211> 307

<212> PRT

<213> Caenorhabditis elegans

<400> 3

```
Ser Lys Thr Val Lys Tyr Phe Ile Glu Arg Met Ser Leu Lys Cys Glu
1               5                   10                  15

Thr Glu Arg Ser Lys Thr Trp Asn Asn Phe Gly Asn Gly Ile Pro Cys
            20                  25                  30

Val Leu Gly Ile Asp Glu Ala Gly Arg Gly Pro Val Leu Gly Pro Met
        35                  40                  45

Val Tyr Ala Ala Ala Ile Ser Pro Leu Asp Gln Asn Val Glu Leu Lys
    50                  55                  60

Asn Leu Gly Val Asp Asp Ser Lys Ala Leu Asn Glu Ala Lys Arg Glu
65                  70                  75                  80

Glu Ile Phe Asn Lys Met Asn Glu Asp Glu Asp Ile Gln Gln Ile Ile
                85                  90                  95

Ala Tyr Ala Leu Arg Cys Leu Ser Pro Glu Leu Ile Ser Cys Ser Met
            100                 105                 110

Leu Lys Arg Gln Lys Tyr Ser Leu Asn Glu Val Ser His Glu Ala Ala
        115                 120                 125

Ile Thr Leu Ile Arg Asp Ala Leu Ala Cys Asn Val Asn Val Val Glu
    130                 135                 140

Ile Lys Val Asp Thr Val Gly Pro Lys Ala Thr Tyr Gln Ala Lys Leu
145                 150                 155                 160
```

Glu Lys Leu Phe Pro Gly Ile Ser Ile Cys Val Thr Glu Lys Ala Asp
165 170 175

Ser Leu Phe Pro Ile Val Ser Ala Ala Ser Ile Ala Ala Lys Val Thr
180 185 190

Arg Asp Ser Arg Leu Arg Asn Trp Gln Phe Arg Glu Lys Asn Ile Lys
195 200 205

Val Pro Asp Ala Gly Tyr Gly Ser Gly Tyr Pro Gly Asp Pro Asn Thr
210 215 220

Lys Lys Phe Leu Gln Leu Ser Val Glu Pro Val Phe Gly Phe Cys Ser
225 230 235 240

Leu Val Arg Ser Ser Trp Lys Thr Ala Ser Thr Ile Val Glu Lys Arg
245 250 255

Cys Val Pro Gly Ser Trp Glu Asp Asp Glu Glu Glu Gly Lys Ser Gln
260 265 270

Ser Lys Arg Met Thr Ser Trp Met Val Pro Lys Asn Glu Thr Glu Val
275 280 285

Val Pro Lys Arg Asn Met Glu Ile Asn Leu Thr Lys Ile Val Ser Thr
290 295 300

Leu Phe Leu
305

<210> 4

<211> 307

<212> PRT

<213> Saccharomyces cerevisiae

<400> 4

Met Val Pro Pro Thr Val Glu Ala Ser Leu Glu Ser Pro Tyr Thr Lys
1 5 10 15

Ser Tyr Phe Ser Pro Val Pro Ser Ala Leu Leu Glu Gln Asn Asp Ser
20 25 30

Pro Ile Ile Met Gly Ile Asp Glu Ala Gly Arg Gly Pro Val Leu Gly
35 40 45

Pro Met Val Tyr Ala Val Ala Tyr Ser Thr Gln Lys Tyr Gln Asp Glu
50 55 60

Thr Ile Ile Pro Asn Tyr Glu Phe Asp Asp Ser Lys Lys Leu Thr Asp
65 70 75 80

Pro Ile Arg Arg Met Leu Phe Ser Lys Ile Tyr Gln Asp Asn Glu Glu
85 90 95

Leu Thr Gln Ile Gly Tyr Ala Thr Thr Cys Ile Thr Pro Leu Asp Ile

```
            100                 105                 110

Ser Arg Gly Met Ser Lys Phe Pro Pro Thr Arg Asn Tyr Asn Leu Asn
        115                 120                 125

Glu Gln Ala His Asp Val Thr Met Ala Leu Ile Asp Gly Val Ile Lys
    130                 135                 140

Gln Asn Val Lys Leu Ser His Val Tyr Val Asp Thr Val Gly Pro Pro
145                 150                 155                 160

Ala Ser Tyr Gln Lys Lys Leu Glu Gln Arg Phe Pro Gly Val Lys Phe
                165                 170                 175

Thr Val Ala Lys Lys Ala Asp Ser Leu Tyr Cys Met Val Ser Val Ala
            180                 185                 190

Ser Val Val Ala Lys Val Thr Arg Asp Ile Leu Val Glu Ser Leu Lys
        195                 200                 205

Arg Asp Pro Asp Glu Ile Leu Gly Ser Gly Tyr Pro Ser Asp Pro Lys
    210                 215                 220

Thr Val Ala Trp Leu Lys Arg Asn Gln Thr Ser Leu Met Gly Trp Pro
225                 230                 235                 240

Ala Asn Met Val Arg Phe Ser Trp Gln Thr Cys Gln Thr Leu Leu Asp
                245                 250                 255

Asp Ala Ser Lys Asn Ser Ile Pro Ile Lys Trp Glu Glu Gln Tyr Met
            260                 265                 270

Asp Ser Arg Lys Asn Ala Ala Gln Lys Thr Lys Gln Leu Gln Leu Gln
        275                 280                 285

Met Val Ala Lys Pro Val Arg Arg Lys Arg Leu Arg Thr Leu Asp Asn
    290                 295                 300

Trp Tyr Arg
305
```

<210> 5

<211> 198

<212> PRT

<213> Escherichia coli

<400> 5

```
Met Ile Glu Phe Val Tyr Pro His Thr Gln Leu Val Ala Gly Val Asp
1               5                   10                  15

Glu Val Gly Arg Gly Pro Leu Val Gly Ala Val Val Thr Ala Ala Val
            20                  25                  30

Ile Leu Asp Pro Ala Arg Pro Ile Ala Gly Leu Asn Asp Ser Lys Lys
        35                  40                  45
```

Leu Ser Glu Lys Arg Arg Leu Ala Leu Tyr Glu Glu Ile Lys Glu Lys
50 55 60

Ala Leu Ser Trp Ser Leu Gly Arg Ala Glu Pro His Glu Ile Asp Glu
65 70 75 80

Leu Asn Ile Leu His Ala Thr Met Leu Ala Met Gln Arg Ala Val Ala
85 90 95

Gly Leu His Ile Ala Pro Glu Tyr Val Leu Ile Asp Gly Asn Arg Cys
100 105 110

Pro Lys Leu Pro Met Pro Ala Met Ala Val Val Lys Gly Asp Ser Arg
115 120 125

Val Pro Glu Ile Ser Ala Ala Ser Ile Leu Ala Lys Val Thr Arg Asp
130 135 140

Ala Glu Met Ala Ala Leu Asp Ile Val Phe Pro Gln Tyr Gly Phe Ala
145 150 155 160

Gln His Lys Gly Tyr Pro Thr Ala Phe His Leu Glu Lys Leu Ala Glu
165 170 175

His Gly Ala Thr Glu His His Arg Arg Ser Phe Gly Pro Val Lys Arg
180 185 190

Ala Leu Gly Leu Ala Ser
195

<210> 6

<211> 286

<212> PRT

<213> Homo sapiens

<300>

<302> Human Type 2 RNase H

<309>

<310> US/09/203,726

<311> 1998-12-02

<312> 1999-12-14

<400> 6

Met Ser Trp Leu Leu Phe Leu Ala His Arg Val Ala Leu Ala Ala Leu
1 5 10 15

Pro Cys Arg Arg Gly Ser Arg Gly Phe Gly Met Phe Tyr Ala Val Arg
20 25 30

```
Arg Gly Arg Lys Thr Gly Val Phe Leu Thr Trp Asn Glu Cys Arg Ala
        35                  40                  45

Gln Val Asp Arg Phe Pro Ala Ala Arg Phe Lys Lys Phe Ala Thr Glu
    50                  55                  60

Asp Glu Ala Trp Ala Phe Val Arg Lys Ser Ala Ser Pro Glu Val Ser
65                  70                  75                  80

Glu Gly His Glu Asn Gln His Gly Gln Glu Ser Glu Ala Lys Pro Gly
                85                  90                  95

Lys Arg Leu Arg Glu Pro Leu Asp Gly Asp Gly His Glu Ser Ala Gln
            100                 105                 110

Pro Tyr Ala Lys His Met Lys Pro Ser Val Glu Pro Ala Pro Pro Val
        115                 120                 125

Ser Arg Asp Thr Phe Ser Tyr Met Gly Asp Phe Val Val Val Tyr Thr
    130                 135                 140

Asp Gly Cys Cys Ser Ser Asn Gly Arg Arg Lys Pro Arg Ala Gly Ile
145                 150                 155                 160

Gly Val Tyr Trp Gly Pro Gly His Pro Leu Asn Val Gly Ile Arg Leu
                165                 170                 175

Pro Gly Arg Gln Thr Asn Gln Arg Ala Glu Ile His Ala Ala Cys Lys
            180                 185                 190

Ala Ile Glu Gln Ala Lys Thr Gln Asn Ile Asn Lys Leu Val Leu Tyr
        195                 200                 205

Thr Asp Ser Met Phe Thr Ile Asn Gly Ile Thr Asn Trp Val Gln Gly
    210                 215                 220

Trp Lys Lys Asn Gly Trp Lys Thr Ser Ala Gly Lys Glu Val Ile Asn
225                 230                 235                 240

Lys Glu Asp Phe Val Ala Leu Glu Arg Leu Thr Gln Gly Met Asp Ile
                245                 250                 255

Gln Trp Met His Val Pro Gly His Ser Gly Phe Ile Gly Asn Glu Glu
            260                 265                 270

Ala Asp Arg Leu Ala Arg Glu Gly Ala Lys Gln Ser Glu Asp
        275                 280                 285
```

<210> 7

<211> 286

<212> PRT

<213> Homo sapiens

<300>

<301> Wu et al.

<302> Molecular Cloning and Expression of cDNA for Human RNase H

<303> Antisense Nucleic Acid Drug Design

<304> 8

<305> 1

<306> 53-61

<307> 1998-02-08

<308> AF039652

<309> 1998-04-02

<400> 7

```
Met Ser Trp Leu Leu Phe Leu Ala His Arg Val Ala Leu Ala Ala Leu
1               5                   10                  15

Pro Cys Arg Arg Gly Ser Arg Gly Phe Gly Met Phe Tyr Ala Val Arg
            20                  25                  30

Arg Gly Arg Lys Thr Gly Val Phe Leu Thr Trp Asn Glu Cys Arg Ala
        35                  40                  45

Gln Val Asp Arg Phe Pro Ala Ala Arg Phe Lys Lys Phe Ala Thr Glu
    50                  55                  60

Asp Glu Ala Trp Ala Phe Val Arg Lys Ser Ala Ser Pro Glu Val Ser
65                  70                  75                  80

Glu Gly His Glu Asn Gln His Gly Gln Glu Ser Glu Ala Lys Ala Ser
                85                  90                  95

Lys Arg Leu Arg Glu Pro Leu Asp Gly Asp Gly His Glu Ser Ala Glu
            100                 105                 110

Pro Tyr Ala Lys His Met Lys Pro Ser Val Glu Pro Ala Pro Pro Val
        115                 120                 125

Ser Arg Asp Thr Phe Ser Tyr Met Gly Asp Phe Val Val Val Tyr Thr
    130                 135                 140

Asp Gly Cys Cys Ser Ser Asn Gly Arg Arg Arg Pro Arg Ala Gly Ile
145                 150                 155                 160

Gly Val Tyr Trp Gly Pro Gly His Pro Leu Asn Val Gly Ile Arg Leu
                165                 170                 175

Pro Gly Arg Gln Thr Asn Gln Arg Ala Glu Ile His Ala Ala Cys Lys
            180                 185                 190

Ala Ile Glu Gln Ala Lys Thr Gln Asn Ile Asn Lys Leu Val Leu Tyr
        195                 200                 205

Thr Asp Ser Met Phe Thr Ile Asn Gly Ile Thr Asn Trp Val Gln Gly
    210                 215                 220
```

Trp Lys Lys Asn Gly Trp Lys Thr Ser Ala Gly Lys Glu Val Ile Asn
225 230 235 240

Lys Glu Asp Phe Val Ala Leu Glu Arg Leu Thr Gln Gly Met Asp Ile
245 250 255

Gln Trp Met His Val Pro Gly His Ser Gly Phe Ile Gly Asn Glu Glu
260 265 270

Ala Asp Arg Leu Ala Arg Glu Gly Ala Lys Gln Ser Glu Asp
275 280 285

<210> 8

<211> 286

<212> PRT

<213> Homo sapiens

<300>

<301> Cerritelli and Crouch

<302> Cloning, Expression and Mapping of Ribonucleases H of Human and Mouse Related to Bacterial RNase HI

<303> Genomics

<304> 53

<305> 3

<306> 300-307

<307> 1998-11-01

<400> 8

Met Ser Trp Phe Leu Phe Leu Ala His Arg Val Ala Leu Ala Ala Leu
1 5 10 15

Pro Cys Arg Arg Gly Ser Arg Gly Phe Gly Met Phe Tyr Ala Val Arg
20 25 30

Arg Gly Arg Lys Thr Gly Val Phe Leu Thr Trp Asn Glu Cys Arg Ala
35 40 45

Gln Val Asp Arg Phe Pro Ala Ala Arg Phe Lys Lys Phe Ala Thr Glu
50 55 60

Asp Glu Ala Trp Ala Phe Val Arg Lys Ser Ala Ser Pro Glu Val Ser
65 70 75 80

Glu Gly His Glu Asn Gln His Gly Gln Glu Ser Glu Ala Lys Ala Ser
85 90 95

Lys Arg Leu Arg Glu Pro Leu Asp Gly Asp Gly His Glu Ser Ala Glu
100 105 110

Pro Tyr Ala Lys His Met Lys Pro Ser Val Glu Pro Ala Pro Pro Val
115 120 125

Ser Arg Asp Thr Phe Ser Tyr Met Gly Asp Phe Val Val Val Tyr Thr
130 135 140

Asp Gly Cys Cys Ser Ser Asn Gly Arg Arg Arg Pro Arg Ala Gly Ile
145 150 155 160

Gly Val Tyr Trp Gly Pro Gly His Pro Leu Asn Val Gly Ile Arg Leu
165 170 175

Pro Gly Arg Gln Thr Asn Gln Arg Ala Glu Ile His Ala Ala Cys Lys
180 185 190

Ala Ile Glu Gln Ala Lys Thr Gln Asn Ile Asn Lys Leu Val Leu Tyr
195 200 205

Thr Asp Ser Met Phe Thr Ile Asn Gly Ile Thr Asn Trp Val Gln Gly
210 215 220

Trp Lys Lys Asn Gly Trp Lys Thr Ser Ala Gly Lys Glu Val Ile Asn
225 230 235 240

Lys Glu Asp Phe Val Ala Leu Glu Arg Leu Thr Gln Gly Met Asp Ile
245 250 255

Gln Trp Met His Val Pro Gly His Ser Gly Phe Ile Gly Asn Glu Glu
260 265 270

Ala Asp Arg Leu Ala Arg Glu Gly Ala Lys Gln Ser Glu Asp
275 280 285

<210> 9

<211> 286

<212> PRT

<213> Homo sapiens

<300>

<301> Frank, Braunshofer-Reiter, Poltl and Holzmann

<302> Cloning, Subcellular Localization and Functional Expression of Human RNase HII

<303> Biol. Chem.

<304> 379

<305> 99

<306> 1407-1412

<307> 1998-12-01

<400> 9

```
Met Ser Trp Leu Leu Phe Leu Ala His Arg Val Ala Leu Ala Ala Leu
1               5                  10                  15

Pro Cys Arg Arg Gly Ser Arg Gly Phe Gly Met Phe Tyr Ala Val Arg
            20                  25                  30

Arg Gly Arg Lys Thr Gly Val Phe Leu Thr Trp Asn Glu Cys Arg Ala
        35                  40                  45

Gln Val Asp Arg Phe Pro Ala Ala Arg Phe Lys Lys Phe Ala Thr Glu
    50                  55                  60

Asp Glu Ala Trp Ala Phe Val Arg Lys Ser Ala Ser Pro Glu Val Ser
65                  70                  75                  80

Glu Gly His Glu Asn Gln His Gly Arg Glu Ser Glu Ala Lys Ala Ser
                85                  90                  95

Lys Arg Leu Arg Glu Pro Leu Asp Gly Asp Gly His Glu Ser Ala Glu
            100                 105                 110

Pro Tyr Ala Lys His Met Lys Pro Ser Val Glu Pro Ala Pro Pro Val
        115                 120                 125

Ser Arg Asp Thr Phe Ser Tyr Met Gly Asp Phe Val Val Val Tyr Thr
    130                 135                 140

Asp Gly Cys Cys Ser Ser Asn Gly Arg Arg Arg Pro Arg Ala Gly Ile
145                 150                 155                 160

Gly Val Tyr Trp Gly Pro Gly His Pro Leu Asn Val Gly Ile Arg Leu
                165                 170                 175

Pro Gly Arg Gln Thr Asn Gln Arg Ala Glu Ile His Ala Ala Cys Lys
            180                 185                 190

Ala Ile Glu Gln Ala Lys Thr Gln Asn Ile Asn Lys Leu Val Leu Tyr
        195                 200                 205

Thr Asp Ser Met Phe Thr Ile Asn Gly Ile Thr Asn Trp Val Arg Gly
    210                 215                 220

Trp Lys Lys Asn Gly Trp Lys Thr Ser Ala Gly Lys Glu Val Ile Asn
225                 230                 235                 240

Lys Glu Asp Phe Val Ala Leu Glu Arg Leu Thr Gln Gly Met Asp Ile
                245                 250                 255

Gln Trp Met His Val Pro Gly His Ser Gly Phe Ile Gly Asn Glu Glu
            260                 265                 270

Ala Asp Arg Leu Ala Arg Glu Gly Ala Lys Gln Ser Glu Asp
        275                 280                 285
```

<210> 10

<211> 299

<212> PRT

<213> Homo sapiens

<300>

<301> Frank, Braunshofer-Reiter, Wintersberger, Grimm and Busen

<302> Cloning of the cDNA encoding the large subunit of human RNase HI, a homologue of the prokaryotic RNase HII

<303> Proc. Natl. Acad. Sci. USA

<304> 95

<305> 22

<306> 12872-12877

<307> 1998-10-27

<400> 10

```
Met Asp Leu Ser Glu Leu Glu Arg Asp Asn Thr Gly Arg Cys Arg Leu
1               5                  10                  15

Ser Ser Pro Val Pro Ala Val Cys Arg Lys Glu Pro Cys Val Leu Gly
            20                  25                  30

Val Asp Glu Ala Gly Arg Gly Pro Val Leu Gly Pro Met Val Tyr Ala
        35                  40                  45

Ile Cys Tyr Cys Pro Leu Pro Arg Leu Ala Asp Leu Glu Ala Leu Lys
    50                  55                  60

Val Ala Asp Ser Lys Thr Leu Leu Glu Ser Glu Arg Glu Arg Leu Phe
65                  70                  75                  80

Ala Lys Met Glu Asp Thr Asp Phe Val Gly Trp Ala Leu Asp Val Leu
                85                  90                  95

Ser Pro Asn Leu Ile Ser Thr Ser Met Leu Gly Arg Val Lys Tyr Asn
            100                 105                 110

Leu Asn Ser Leu Ser His Asp Thr Ala Thr Gly Leu Ile Gln Tyr Ala
        115                 120                 125

Leu Asp Gln Gly Val Asn Val Thr Gln Val Phe Val Asp Thr Val Gly
    130                 135                 140

Met Pro Glu Thr Tyr Gln Ala Gln Leu Gln Gln Ser Phe Pro Gly Ile
145                 150                 155                 160

Glu Val Thr Val Lys Ala Lys Ala Asp Ala Leu Tyr Pro Val Val Ser
                165                 170                 175

Ala Ala Ser Ile Cys Ala Lys Val Ala Arg Asp Gln Ala Val Lys Lys
            180                 185                 190

Trp Gln Phe Val Glu Lys Leu Gln Asp Leu Asp Thr Asp Tyr Gly Ser
```

```
        195                 200                 205

Gly Tyr Pro Asn Asp Pro Lys Thr Lys Ala Trp Leu Lys Glu His Val
    210                 215                 220

Glu Pro Val Phe Gly Phe Pro Gln Phe Val Arg Phe Ser Trp Arg Thr
225                 230                 235                 240

Ala Gln Thr Ile Leu Glu Lys Glu Ala Glu Asp Val Ile Trp Glu Asp
                245                 250                 255

Ser Ala Ser Glu Asn Gln Glu Gly Leu Arg Lys Ile Thr Ser Tyr Phe
            260                 265                 270

Leu Asn Glu Gly Ser Gln Ala Arg Pro Arg Ser Ser His Arg Tyr Phe
        275                 280                 285

Leu Glu Arg Gly Leu Glu Ser Ala Thr Ser Leu
    290                 295
```

<210> 11

<211> 285

<212> PRT

<213> Mus sp.

<300>

<301> Cerritelli and Crouch

<302> Cloning, Expression and Mapping of Ribonucleases H of Human and Mouse Related to Bacterial RNase HI

<303> Genomics

<304> 53

<305> 3

<306> 300-307

<307> 1998-11-01

<400> 11

```
Met Arg Trp Leu Leu Pro Leu Ser Arg Thr Val Thr Leu Ala Val Val
1               5                   10                  15

Arg Leu Arg Arg Gly Ile Cys Gly Leu Gly Met Phe Tyr Ala Val Arg
            20                  25                  30

Arg Gly Arg Arg Thr Gly Val Phe Leu Ser Trp Ser Glu Cys Lys Ala
        35                  40                  45

Gln Val Asp Arg Phe Pro Ala Ala Arg Phe Lys Lys Phe Ala Thr Glu
```

```
    50                  55                  60

Asp Glu Ala Trp Ala Phe Val Arg Ser Ser Ser Ser Pro Asp Gly Ser
65                  70                  75                  80

Lys Gly Gln Glu Ser Ala His Glu Gln Lys Ser Gln Ala Lys Thr Ser
                85                  90                  95

Lys Arg Pro Arg Glu Pro Leu Gly Glu Gly Glu Glu Leu Pro Glu Pro
            100                 105                 110

Gly Pro Lys His Thr Arg Gln Asp Thr Glu Pro Ala Ala Val Val Ser
        115                 120                 125

Lys Asp Thr Phe Ser Tyr Met Gly Glu Ser Val Ile Val Tyr Thr Asp
    130                 135                 140

Gly Cys Cys Ser Ser Asn Gly Arg Lys Arg Ala Arg Ala Gly Ile Gly
145                 150                 155                 160

Val Tyr Trp Gly Pro Gly His Pro Leu Asn Val Gly Ile Arg Leu Pro
                165                 170                 175

Gly Arg Gln Thr Asn Gln Arg Ala Glu Ile His Ala Ala Cys Lys Ala
            180                 185                 190

Ile Met Gln Ala Lys Ala Gln Asn Ile Ser Lys Leu Val Leu Tyr Thr
        195                 200                 205

Asp Ser Met Phe Thr Ile Asn Gly Ile Thr Asn Trp Val Gln Gly Trp
    210                 215                 220

Lys Lys Asn Gly Trp Arg Thr Ser Thr Gly Lys Asp Val Ile Asn Lys
225                 230                 235                 240

Glu Asp Phe Met Glu Leu Asp Glu Leu Thr Gln Gly Met Asp Ile Gln
                245                 250                 255

Trp Met His Ile Pro Gly His Ser Gly Phe Val Gly Asn Glu Glu Ala
            260                 265                 270

Asp Arg Leu Ala Arg Glu Gly Ala Lys Gln Ser Glu Asp
        275                 280                 285
```

<210> 12

<211> 1131

<212> DNA

<213> Homo sapiens

<400> 12

```
cgcgcctgca gtattagttc ttgcagctgg tggtggcggc tgaggcggca tggatctcag     60

cgagctggag agagacaata caggccgctg tcgcctgagt tcgcctgtgc ccgcggtgtg    120

ccgcaaggag ccttgcgtcc tgggcgtcga tgaggcgggc aggggccccg tgctgggccc    180
```

catggtctac gccatctgtt attgtcccct gcctcgcctg gcagatctgg aggcgctgaa 240

agtggcagac tcaaagaccc tattggagag cgagcgggaa aggctgtttg cgaaaatgga 300

ggacacggac tttgtcggct gggcgctgga tgtgctgtct ccaaacctca tctctaccag 360

catgcttggg tgggtcaaat acaacctgaa ctccctgtca catgatacag ccactgggct 420

tatacagtat gcattggacc agggcgtgaa cgtcacccag gtattcgtgg acaccgtagg 480

gatgccagag acataccagg cgcggctgca gcaaagtttt cccgggattg aggtgacggt 540

caaggccaaa gcagatgccc tctacccggt ggttagtgct gccagcatct gtgccaaggt 600

ggcccgggac caggccgtga agaaatggca attcgtggag aaactgcagg acttggatac 660

tgattatggc tcaggctacc ccaatgatcc caagacaaaa gcgtggttga aggagcacgt 720

ggagcctgtg ttcggcttcc cccagtttgt ccggttcagc tggcgcacgg cccagaccat 780

cctggagaaa gaggcggaag atgttatatg ggaggactca gcatccgaga atcaggaggg 840

actcaggaag atcacatcct acttcctcaa tgaagggtcc caagcccgtc cccgttcttc 900

ccaccgatat ttcctggaac gcggcctgga gtcagcaacc agcctctagc agctgcctct 960

acgcgctcta cctgcttccc caacccagac attaaaattg tttaaggaga accacacgta 1020

ggggatgtac ttttgggaca gaagcaaggt gggagtgtgc tctgcagccg ggtccagcta 1080

cttccttttg gaaccttaaa tagaatgggt gttggttgat aaaaaaaaaa a 1131

<210> 13

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Sense primer

<400> 13
agcaggcgcc gcttcgaggc 20

<210> 14

<211> 26

<212> DNA

<213> Artificial

<220>

<223> Sense primer

<400> 14
cccgctcctg cagtattagt tcttgc 26

<210> 15

<211> 25

<212> DNA

<213> Artificial

<220>

<223> Sense primer

<400> 15
ttgcagctgg tggtggcggc tgagg 25

<210> 16

<211> 26

<212> DNA

<213> Artificial

<220>

<223> Antisense primer

<400> 16
tccaataggg tctttgagtc tgccac 26

<210> 17

<211> 25

<212> DNA

<213> Artificial

<220>

<223> Antisense primer

<400> 17
cactttcagc gcctccagat ctgcc 25

<210> 18

<211> 26

<212> DNA

<213> Artificial

<220>

<223> Antisense primer

<400> 18
gcgaggcagg ggacaataac agatgg 26

<210> 19

<211> 17

<212> DNA

<213> Artificial

<220>

<223> Ras RNA fragment for use in RNase H cleaving assay

<400> 19
gggcgccgtc ggtgtgg 17

<210> 20

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 20
cgcctcagcc gccaccacca 20

<210> 21

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 21
cacaggcgaa ctcaggcgac 20

<210> 22

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 22
ggacaataac agatggcgta 20

<210> 23

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 23
cccgctcgct ctccaatagg 20

<210> 24

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 24

cccagccgac aaagtccgtg 20

<210> 25

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 25
cggtgtccac gaatacctgg 20

<210> 26

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 26
cgcgcctggt atgtctctgg 20

<210> 27

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 27
ggtagagggc atctgctttg 20

<210> 28

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 28
ccaccttggc acagatgctg 20

<210> 29

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 29
cagtttctcc acgaattgcc 20

<210> 30

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 30
ttttgtcttg ggatcattgg 20

<210> 31

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 31
agctgaaccg gacaaactgg 20

<210> 32

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 32
cctctttctc caggatggtc 20

<210> 33

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 33
actccaggcc gcgttccagg 20

<210> 34

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 34
cctacgtgtg gttctcctta 20

<210> 35

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 35
gcacactccc accttgcttc 20

<210> 36

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 36
caaaaggaag tagctggacc 20

<210> 37

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 37
aaacaatttt aatgtctggg 20

<210> 38

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 38
aattttaatg tctgggttgg 20

<210> 39

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Antisense oligonucleotide

<400> 39
ccttaaacaa ttttaatgtc 20